

REMARKS

Claims 9 and 10 have been amended to correct the formula for Z^4 and Z^5 , to show a single bonding position to hydroxyl. The error and correction thereof are obvious to one skilled in the art.

Claims 1, 3, 5-8, 35-40 and 42-62 directed to a non-elected invention have been canceled. Applicants reserve the right to file a divisional application directed to canceled subject matter.

Review and reconsideration on merits are requested.

Claims 2, 4 and 9-32 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,468,712 to Fedynyshyn. The '712 patent was cited as disclosing a radiation sensitive composition for UV photolithography, comprising norbornene monomers including fluorinated substituents and tertiary alcohol groups. The Examiner considered the '712 patent as teaching preparation methods and compounds meeting the terms of the present claims.

Applicants traverse, and respectfully request the Examiner to reconsider for the following reasons.

Claims 2 and 4 are directed to a method of making, whereas claims 9-32 are directed to a product (norbornene derivative). As claimed in claim 2, a norbornene derivative represented by formula (3) where X^4 is a carboxylate or carbonyl-containing group is reacted with a fluoroalkylation agent which introduces Rf^2 (i.e., a fluorine-containing alkyl group having 1 to 10 carbon atoms which may further contain ether bond) to X^4 . As claimed in claims 9-32, the norbornene derivative includes a tertiary alcohol group as noted by the Examiner.

Applicants now distinguish the claimed process and product from the prior art as follows.

In the process of claims 2 and 4, the ester group or carbonyl group of the norbornene derivative is converted to a fluorine-containing tertiary alcohol structure by reacting with a fluoroalkylation agent.

On the other hand, in Fedynyshyn, a norbornene derivative having a fluorine-containing tertiary alcohol structure is prepared, as described in EXAMPLE 5, by subjecting cyclopentadiene and an unsaturated fluorine-containing tertiary alcohol to Diels-Alder reaction.

Accordingly, there are differences between the invention and Fedynyshyn, in both starting materials and reactants.

The reaction disclosed in Fedynyshyn corresponds to a conventional Diels-Alder reaction (i) described at pages 27-28 of the Applicants' specification. As disclosed therein:

...the Diels-Alder reaction in combination of the allyl compound and cyclopentadiene is low in reactivity and the reaction need be carried out at high temperatures of not less than 150°C and further because of high temperature reaction, there are produced a large amount of dimmers and trimers of cyclopentadiene and by-products comprising intended norbornene compound having 1 to 3 molecules of cyclopentadiene added thereto by ring formation, which results in lowering of yield.

To the contrary, according to the present invention, by using a norbornene having C=O group which can be easily synthesized by the Diels-Alder reaction at high yield, the norbornene thus obtained having C=O group is reacted with a fluoroalkylation agent to obtain a norbornene derivative having a fluorine-containing tertiary alcohol structure in a high total yield (page 32, lines 2-6).

The norbornene derivatives represented by the formulae (8), (9), (10), (11) and (12) have fluorine-containing tertiary alcohol structures which are directly bonded to the norbornene ring structure.

On the other hand, in the norbornene derivative described in Fedynyshyn, the fluorine-containing tertiary alcohol is bonded via $-CH_2-$ to the norbornene ring structure.

Therefore, Fedynyshyn also does not disclose the claimed norbornene derivatives.

Moreover, the norbornene derivatives having the fluorine-containing tertiary alcohol structure of Applicants' invention have improved transparency and dry-etching resistivity, and excellent solubility in an alkaline solution (a developing solution for a resistivity, and excellent solubility in an alkaline solution (a developing solution for a resist) (page 5, line 21 to page 6, line 12; page 63, lines 10-18 of the specification).

For the above reasons, it is respectfully submitted that claims 2, 4 and 9-32 are patentable over Fedynyshyn, and withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/753,529

Q79073

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Respectfully submitted,



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